UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/771,698	02/03/2004	Ozgur C. Leonard	15437-0601	3805

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EXAMINER
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ART UNIT	PAPER NUMBER
2195	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

	Application No.	Applicant(s)
Office Action Summary	10/771,698	LEONARD ET AL.
	Examiner	Art Unit	
	ERIC C. WAI	2195	

-- *The MAILING DATE of this communication appears on the cover sheet with the correspondence address* --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☒ Responsive to communication(s) filed on <u>31 January 2008</u>.

2a) ☒ This action is **FINAL**.   2b) ☐ This action is non-final.

3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) ☒ Claim(s) <u>1-24</u> is/are pending in the application.

     4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5) ☐ Claim(s) _____ is/are allowed.

6) ☒ Claim(s) <u>1-24</u> is/are rejected.

7) ☐ Claim(s) _____ is/are objected to.

8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) ☐ The specification is objected to by the Examiner.

10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.

     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

     a) ☐ All   b) ☐ Some * c) ☐ None of:

         1. ☐ Certified copies of the priority documents have been received.

         2. ☐ Certified copies of the priority documents have been received in Application No. _____.

         3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

     * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date <u>4/23/2008</u>.

4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.

5) ☐ Notice of Informal Patent Application

6) ☐ Other: _____.

DETAILED ACTION

1.   Claims 1-24 are presented for examination.

Information Disclosure Statement

2.   The information disclosure statements filed 10/04/2004 and 12/22/2007 have not

been considered by the examiner. The information cited is "related applications.

Applicant should place this information in the "related applications" section of the

specification for consideration by the Examiner. Correction is required.

Claim Rejections - 35 USC § 103

3.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set
> forth in section 102 of this title, if the differences between the subject matter sought to be patented and
> the prior art are such that the subject matter as a whole would have been obvious at the time the
> invention was made to a person having ordinary skill in the art to which said subject matter pertains.
> Patentability shall not be negatived by the manner in which the invention was made.

4.   Claims 1-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over

Armstrong et al. (US PG Pub No. US 2002/0156824 A1 hereinafter Armstrong).

5.   Armstrong was disclosed in IDS date 10/03/2005.

6.   Regarding claim 1, Armstrong teaches a machine-implemented method,

comprising:

establishing, within a global operating system environment provided by an operating system, a non-global partition which serves to isolate processes running within the non-global partition from other non-global partitions within the global operating system environment ([0034], wherein hypervisor 202 enforces partitioning of processor resources);

associating a first resource limit with the non-global partition, wherein the first resource limit indicates a maximum amount of a particular resource that can be allocated to the non-global partition ([0034], wherein it is inherent that resource limits be set since the hypervisor enforces partitioning of resources).

7.   Armstrong does not explicitly teach associating a second resource limit with a group of one or more processes within the non-global partition, wherein the second resource limit indicates a maximum amount of the particular resource that can be allocated to the group of one or more processes.

8.   However, Armstrong teaches that separate operating systems are installed in each one the logical partitions ([0035]). It is old and well known that operating systems may place resource limits on tasks running within the operating system to provide for efficient sharing of resources. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to including associating a resource limit with a group of one or more processes within the partitions. One would be motivated by the desire to share the resources among the various tasks within each partition and prohibit any one task from blocking other tasks from executing.

9.   Regarding claim 2, Armstrong teaches that a global partition administrator sets the first resource limit ([0025]).

10.   Regarding claim 3, Armstrong teaches that a non-global partition administrator sets the second resource limit ([0036]).

11.   Regarding claim 4, Armstrong teaches: receiving a resource allocation request for the particular resource from a process executing in the group of one or more processes; determining an amount of the particular resource that can be allocated; and allocating the determined amount to the group of one or more processes ([0035], wherein it is inherent that processes running under an operating system request resources, and operating systems allocate the resources accordingly).

12.   Regarding claim 5, Armstrong does not explicitly teach: calculating an available amount of the particular resource, and wherein if the resource allocation request is less than or equal to the available amount, then the determined amount is set to the amount of the resource allocation request.

13.   However, it would have been obvious to one of ordinary skill in the art at the time of the invention to set the determined amount to the amount of the resource allocation request. It is old and well known to allocate resources if such resources are sufficiently available.

14.   Regarding claim 6, Armstrong does not explicitly teach wherein if the resource allocation request is greater than the available amount, then the determined amount is set to the available amount.

15.   However, it would have been obvious to one of ordinary skill in the art at the time of the invention to set the determined amount to the available amount. It is old and well known to allocate resources to an amount that is available.

16.   Regarding claim 7, Armstrong does not teach wherein if the resource allocation request is greater than the available amount, then the determined amount is set to zero.

17.   It would have been obvious to one of ordinary skill in the art at the time of the invention to set the determined amount to zero. It is old and well known the deny requests if such requests cannot be completely fulfilled. One would be motivated by the desire to allocate zero resources to the requester is the request could not be completely fulfilled.

18.   Regarding claim 8, Armstrong does not teach wherein calculating further comprises: calculating a first amount by subtracting the total amount of the particular resource allocated to the non-global partition from the first resource limit; calculating a second amount by subtracting the total amount of the particular resource allocated to the group of one or more processes from the second resource limit; and setting the available amount to the lower of the first amount and the second amount.

19.   It is well known in the art to subtract the amount consumed from the total amount

to realize the amount available. Therefore, it would have been obvious to one of

ordinary skill in the art at the time of the invention to calculate an available amount using

this method and choosing the lesser of the amounts to determine the amount available.

20.   Regarding claims 9-17 they are the machine-readable medium and apparatus

claims of claims 1-8 above. Therefore they are rejected for the same reasons as claims

1-8 above.

Response to Arguments

21.   Applicant argues on pg 10:

        "Armstrong's logical partitions 204A-204D are not partitions established by an

operating system within an operating system environment provided by the operating

system. If they were, the partitions would look like the partitions shown in Fig. 1 of the

present application, wherein a plurality of non-global partitions 140 are shown within a

global operating environment 130 provided by an operating system. There is no such

showing in Armstrong. Instead, in Fig. 2 of Armstrong, each of the partitions 204A-204D

is shown as a separate partition, each of the partitions is shown as executing a separate

OS kernel (paragraph 0035), and none of the OS kernels show multiple partitions within

it. Hence, unlike Claim 1, the logical partitions of Armstrong are not operating system

partitions but rather separate OS kernels (as the Office Action also points out), and they

are not established by an operating system within an operating system environment

provided by the operating system. This aspect of Claim 1 is clearly not taught or disclosed by Armstrong."

22.   Examiner disagrees. Well not explicitly taught in Armstrong, as is well known in the art, a hypervisor is similar in function to an operating system such as claimed by Applicant. An operating system is defined as "the software that controls the allocation and usage of hardware resources such as memory, central processing unit time, disk space, and peripheral devices. The operating system is the foundation software on which applications depend (Microsoft Computer Dictionary, Fifth Edition, 2002). Armstrong teaches that a hypervisor enforces the logical partitioning of processor resources such as memory, and routing of I/O ([0034]). Since Armstrong clearly teaches that the hypervisor runs a layer above the hardware, the hypervisor is the foundation upon which other operating system and applications can run. For these reasons, a hypervisor is analogous to an operating system and reads on the claimed invention.

23.   Applicant argues on pgs 10-11:

        "Further, Armstrong does not teach or disclose associating a second resource limit with a group of one or more processes within the non-global partition, wherein the second resource limit indicates a maximum amount of the particular resource that can be allocated to the group of one or more processes as cited in Claim 1. The Office Action states that Armstrong does not teach such a feature. However, the Office Action states that "... it would have been obvious to one of ordinary skill in the art at the time of the invention to including associating a resource limit with a group of one or more

processes within the partitions. One would be motivated by the desire to share the resources among the various tasks within each partition and prohibit any one task from blocking other tasks from executing." The Office Action contradicts itself in its statement."

24.   Examiner disagrees. Setting maximum resource limits for groups, (wherein a group can pertain to a single process or task according to the claims), allows resources to be shared among other groups. Because an individual group is limited from consuming the resource entirely, the group cannot claim full ownership of the resource and block other groups from using it. As asserted by the Office Action, such teaching is well known in the art. Thus, there is no contradiction by the Office Action as asserted by Applicant.

25.   Applicant argues on pg 11:

        "The motivation that the Office Action states, assuming, arguendo, that it is a valid motivation, would result in one having to limit the amount of a resource that a single task could consume. The Office Action's approach would then "prohibit any one task from blocking other tasks from executing". However, the actual language of the claim element is (emphasis added): "associating a second resource limit with a group of one or more processes within the non-global partition, wherein the second resource limit indicates a maximum amount of the particular resource that can be allocated to the group of one or more processes." There is no showing by the Office Action that it would have been obvious to one of ordinary skill in the art at the time of the invention to

associate a second resource limit with a group of one or more processes within the non-global partition. Further, there is no mention in Armstrong that processes within a non-global partition can be grouped together. Therefore, Armstrong does not contemplate such a feature."

26.   Examiner disagrees for the same reasons above. Furthermore, Applicant's invention allows for a "group" to be one process.

Conclusion

27.   **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

28.   Any inquiry concerning this communication or earlier communications from the examiner should be directed to Eric C. Wai whose telephone number is 571-270-1012. The examiner can normally be reached on Mon-Thurs, 9am-5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Meng - Ai An can be reached on 571-272-3756. The fax phone number for

the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the

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Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a

USPTO Customer Service Representative or access to the automated information

system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Eric C Wai/
Examiner, Art Unit 2195

/Meng-Ai An/

Supervisory Patent Examiner, Art Unit 2195